

MV-22 Osprey and VMX-22

The MV-22 Osprey tiltrotor is an advanced technology, vertical/short take-off and landing, multi-purpose tactical aircraft that will replace the fleet of Vietnam-era CH-46E and CH-53D aircraft currently in service. The MV-22 joined the Expeditionary Fighting Vehicle and Landing Craft Air Cushion as an integral part of the Seabasing pillar necessary to execute expeditionary maneuver warfare. The MV-22's specific missions include expeditionary assault from land or sea, raid operations, medium cargo lift, tactical recovery of aircraft and personnel, and fleet logistic support.

The MV-22's 38-foot prop-rotor system and engine/transmission nacelle mounted on each wing tip allow it to operate as a helicopter for takeoff and landing. Once airborne, the nacelles rotate forward 90 degrees, converting the aircraft into a high-speed, high-altitude, fuel-efficient turbo-prop aircraft. The MV-22's design also incorporates the advanced, but mature, technologies of composite materials, fly-by-wire flight controls, and digital cockpits. The Osprey has a 350-nautical mile combat radius, cruises at 255 knots and is capable of carrying 24 combat-equipped Marines or a 10,000-pound external load. With a 2,100-nautical mile single aerial refueling range, the aircraft also has a strategic self-deployment capability.

The V-22 is a multi-mission aircraft designed for use by all the armed services. The Marine Corps, Navy, and Air Force are committed to the fielding of this unique aircraft. MV-22 aircraft are being

produced utilizing a block approach as follows:

Block A series provides an improved aircraft with which the Marine Corps can train. This includes a software enhancement, nacelle reconfiguration, and additional reliability and maintainability improvements. These aircraft will remain at VMMT-204, the MV-22 Fleet Replacement Squadron, and will not deploy. There are 29 Block A aircraft that have been delivered and are currently on the flight line at MCAS New River.

Block B series aircraft will be the first MV-22s to deploy. They provide further improvements in effectiveness and maintainability for operators and maintainers, to include improved access to the nacelle for inspection purposes and substantial reliability and maintenance improvements. The first Block B aircraft was delivered to the Marine Corps in December 2005 and there are currently (February 2007) 15 Block B MV-22B's.

Block C configuration incorporates mission enhancements. These enhancements include the addition of a weather radar, a forward firing ALE-47 dispenser, improved hover coupled features, an improved environmental conditioning system (ECS), and a troop commander situational awareness station.

Since the MV-22 is neither a fixed-wing nor a rotary-wing platform, it has a unique designation as a tiltrotor. The aeromechanics, composite structure, maintenance concepts, and concept of employment are inherently unique and best addressed in a squadron solely focused on tiltrotor operational test. Marine Tiltrotor Operational Test and Evaluation Squadron Twenty-Two (VMX-22) stood up in August 2003 to meet these requirements.

VMX-22 reports to the Commander, Operational Test and Evaluation Force (COMOPTEVFOR), who in turn reports test data and results to the Office of the Secretary of Defense, Director Operational Test and Evaluation.

VMX-22 completed Operational Evaluation (OPEVAL) in June 2005. The Operational Test IIG report was completed and released by COMOPTEVFOR in August 2005. The report found the MV-22 Block A to be operationally effective and operationally suitable.

VMX-22 utilized eight MV-22s, conducting the OPEVAL at multiple locations: MCAS New River, North Carolina; Nellis AFB, Nevada; Marine Corps Mountain Warfare Training Center, Bridgeport, California; western U.S. test ranges; and embarked aboard the USS *Bataan* (LHD 5) in the western Atlantic. Missions were executed during operationally relevant scenarios consistent with a small scale

contingency, and were flown under a variety of environments, operational tempos, and threat levels. All key performance parameters were met or exceeded threshold requirements. As a result of the successful OPEVAL, the Defense Acquisition Board approved Milestone III in September 2005, authorizing Full Rate Production of the Osprey.

The Marine Corps' transition from the CH-46E to the MV-22 began with HMM-263 in June 2005 as the first group of maintenance Marines entered training at MCAS New River. Aircrew from VMM-263 began training with VMMT-204 in November 2005 with an anticipated FY 2007 deployment. The remainder of the CH-46E and CH-53D squadrons are anticipated to transition to the Osprey at the rate of two squadrons per year.